

Where ^{does} the rubber ~~meets~~ the road ^{when it comes to Space?}

The 1st Space Battalion commander knows:

[^]Space Soldiers on the ground supporting warfighting commanders

Recently, the Army Space Journal posed some questions to LTC Jeffrey Farnsworth, commander, 1st Space Battalion, 1st Space Brigade, to get his thoughts on Space support to the force. The questions range from what “state of the art” is today to where it needs to go. Farnsworth provided answers to the questions during a recent address to his troops. These questions and Farnsworth’s answers will be of interest to the entire Space community, coming from a commander who operates every day where the rubber meets the road.

Q: Space Support to the warfighter has evolved rapidly and in diverse directions since this command introduced the Portable Lightweight GPS Receiver (PLGR) technology to the Army in the late 1980s. Where is the “state of the art” now? And how does your battalion use these capabilities to support the warfighter.

A: State of the art, whether in commercial industry or in military applications is less than it could be. Financial constraints and high cost make achieving “state of the art” difficult when it comes to Space. However, when it comes to warfighting the United States government needs to be willing to invest in the high-risk areas in partnership with industry – we can help mitigate their risk and they can help us spiral Space capabilities much faster than we could on our own.

The battalion leverages commercial off the shelf technology and applies it to the battlefield, but it is more than just the battalion we’re talking about. Space is pervasive and not the exclusive realm of Space warriors. GPS, satellite communications, imagery and signal intelligence sensors, and more are embedded in Joint warfighting systems across the DoD and throughout the battlespace – as it should be – so everyone out there is Space enabled to some extent. However, everyone out there does not understand the capabilities, limitations and full set of applications their Space-enabled technology provides. That is where our battalion, brigade, SMDC/ARSTRAT, Space Support Elements (SSE), and jointly-assigned soldiers come into play. We don’t find terrorists; we help the operational G-2 find terrorists day or night in any weather. We don’t kill terrorists, we help the operational G-3 visualize and describe the battlefield so they can synchronize forces and fires to kill terrorists quickly and with precision. We don’t do the operational G-6 job; we help them do it better. We are the BASF Coporation of the Army.

To do this, we have several toolsets in our kit bag. The primary one is SATURN – which means Space, Applications, Technology, User, Reachback, Node. The Army Space Support Teams (ARSST) and SSEs use this equipment to provide us organic bandwidth, reach, and the decision aids and analysis to help supported units is one of these. “Brenda,”

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 2005		2. REPORT TYPE		3. DATES COVERED 00-00-2005 to 00-00-2005	
4. TITLE AND SUBTITLE Where does the rubber meet the road when it comes to Space? The 1st Space Battalion commander knows: Space Soldiers on the ground supporting warfighting commanders				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Army Space & Missile Defense Command, Army Forces Strategic Command, Redstone Arsenal, AL, 35809				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 4	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			



Commander contact with Soldiers is one of the most important aspects of leadership. LTC Jeffrey Farnsworth talks to his Soldiers in the motor pool as they prepare to do maintenance on their vehicles.
Photo by SFC Dennis Beebe

the enhanced JTAGS infra-red processor, which provides us the ability to help characterize “hot spots” and warn forces of incoming missiles, is another.

However, I wouldn’t call these battalion technologies “state of the art.” They are “state of the affordable,” given that we really don’t have the Force Generation side of the Army and Program Elements in place to make the best technology available to Space Warriors and Army forces in general. If you look back over the last decade, plus, the technology within the battalion has only seen marginal improvement – what we need is significant spirals of technologies that will allow us to leap ahead in real warfighting capabilities quicker than we otherwise could.

Q: What do you see as the next development of “state of the art” technology and how will your soldiers use it to support the warfighter?

A: We have to get away from just marginal improvements to what we have already and invest in Space capabilities with real-time tactical effects. And we need to have Space Warriors deliver those effects. You know we’ve achieved the objective when the supported commander asks for the Senior Space Officer (SSO) just as often as he asks for the Fire Support Officer (FSO).

It is my sincere wish that the MACOM and the Army can synchronize effort and resources so that two or three battalion commanders from now we will have real effects capabilities in the battalion.

I think there are four areas ripe for exploitation, some which, if the Army doesn’t tackle no one will. Hyper-

spectral technology, high altitude long loiter platforms with mission tailored sensors/payloads, total “Space to mud” visualization and assessment, and tactical/precision Space control negation.

Hyper-spectral sensors can discern any type of man-made object or disturbance from all other natural occurrences. Imagine a day when we can distinguish disturbed earth or sealed over cracks in pavement from the rest of the background. We could remotely scan vehicle routes for suspected buried Improvised Explosive Device sites with a high degree of certainty before the convoy ever leaves, and give tactical forces either targets or warning.

High Altitude Long Loiter (HALL) platforms are a relatively low cost way to have a satellite-like capability under tactical control. Land warriors suffer from the history of Space as a strategic asset. Because of the strategic paradigm, Space sensors are typically irrelevant or at a minimum, unimpressive and untimely for the tactical warfight. HALL platforms, with a variety of sensors and transponders, configured and operated by Space warriors would effectively give land warriors tactical satellites at an order of magnitude less in cost. Now then, I can work with the supported intel, ops and comms planners, tailor a package of sensors that fills capability gaps, put it in a stationary orbit out of harms way and then steer/direct/task and deliver the resulting information wherever it is needed, whenever it is needed. Again, I would not be doing the job of the G-2, G-3, G-6, or others, but helping them do their jobs better. What we know as ARSST today could perform this mission with the proper training and

equipment.

Imagine a day when operations in cities and build up areas no longer suffer from terrain masking effects on GPS and communications signals, we could get 3-D walkthroughs of the battlespace to squad level instead of today's limited flythroughs. Sensors, communications, target designators, over the horizon radar, fire direction and control devices could be tailored for the mission or area of operations, netted together and integrated into the Global Information Grid. Those assets would then be responsive and relevant to the rest of the tactical operational level thus bridging the Strategic to tactical Space calibration gap.

You give Space Warriors tools like the ones we described and when the commander moves out you'll hear him say, "FSO and SSO, follow me."

Q: The SSEs are deploying to be with each Division. What changes will placing these capabilities in the divisions have to the way you do business now? Will it make your elements more effective?

A: The SSEs look and smell a lot like an Army Space Support Team and that is a good thing. The real value of an SSE is that it provides an integration of yet another Space support capability at a lower echelon. It is closer to the mud.

The battalion's mission is to synchronize Space effort across the Battlefield. In the past we've had gaps at the tactical level. We plug-in at the operational level, The SSE's will fill out the Space presence on the battlefield. The sooner we complete synchronization of our mutual capabilities, the better the warfighter will be.

Q: Measurement and Signatures Intelligence (MASINT) is currently a strong thrust in technology development. How do you see these developments being fed into and used by your elements to support the warfighter?

A: Currently MASINT could benefit from better exploitation and diffusion. This technology gives us the ability to find people, things, and aspects of the battlefield where there are shortfalls, on capability. Our Commercial Exploitation Team (CET) is training to use and master this technology. Together with ARSST, as the planning interface and delivery mechanism, the CET and ARSST, armed with MASINT could help locate bad guys on the

Syrian border. They are on the right training track, however a technology void still exists and we need to jump in and fix it.

Q: How much technological support is enough for the warfighter. By that I mean, is there a threshold at which the supported guy gets overwhelmed by information and instead of helping him make good decisions it just becomes too much to digest and gets pushed aside? What do you see as the principal evolutionary direction of Space support in the near future, and the far future?

A: Technology can be its own devil. I learned somewhere that the Blue Force Situational Awareness Advanced Concept Technology Design was able to link 176 different boxes to come up with a common operational picture. I don't know if that is true, but if it is, that's way too many boxes, and too many places where things can go wrong. Third Space Company can have as many as three to six computer systems running at one time and they are all separate networks. Whether its the BFSA or my own operations, we all need less data, lead info, and more knowledge from one box that is netted with the rest of the force and can operate at any class level.

Q: What kind of feedback do you get from supported units about your Soldier's efforts?

A: We get positive feedback wherever we go. Our Soldiers are professionals. Reports I get from Central Command principals are always good. Our guys are part of the team and they do whatever is required and whatever they can to make a difference. Supported units share the same foundations we have in terms of capability and technology. Every time one of our elements goes out to support a warfighter, on an exercise or operation, no matter what that entails, there is a learning process involved. Our people determine what that commander needs from Space and we deliver – we don't ask, we just deliver – the end result is that we are appreciated and a valued member of the team.

We are also teaching the supported unit just what exactly Space can do for them and so our Soldiers are also mentors, working in synch with them, teaching them how to get the most and the most accurate Space support possible.

Q: What is the most important quality in a Space Soldier? Is it perseverance, or being a self-starter, or is it someone who has a complete understanding how Space can support the warfighter and aggressively pursues a course of action designed to educate and support at the same time? Or is it something else?

A: Three things; expertise, presence and attitude.

First: That soldier has to show up with the right equipment and expertise. He or she has to be the Soldier who understands and delivers Space products and services that make a difference in finding and killing the enemy. This is primary!

By being the expert I mean that that Soldier has to know the systems that bring the full spectrum of Space products. Then the Soldier also has to know how to bring the right products to make a difference.

Second: Presence is critical. We have to be there. Reach back is great but too much reach is a liability. Every commander wants to look his Space guy in the eye and say “fix this problem.” We send Soldiers to Iraq because their presence there is as important as what they bring. Can you imagine trying to synchronize a battlefield from sunny California? It doesn’t work. You gotta be there.

Third: You have to have the right attitude and be aggressive. We represent the cutting edge of Space forces.

You have to assess the situation, determine what needs doing and deliver the goods – all without asking – just do it – pretty soon everyone will be knocking on the Space door.

In the battalion we are continuing to make tremendous progress but we have reached the limit of our capabilities.

We are the BASF Corporation of the Army. We don’t kill the terrorists, we help you to find them and kill them better. An honest, capable and aggressive approach is the key to this success.

And finally, always remember that technology is important but people are more important. We have to grow our leaders from the ranks of Space experts to get a complete range of talents and skills necessary to continue to provide the best possible Space support to the warfighter. I will endeavor to spend the rest of my career devoted to developing and delivering to the Army and this battalion, capabilities I wish I had two years ago.

An emphatic communicator, LTC Jeffrey Farnsworth keeps his Soldiers informed. Photos by SFC Dennis Beebe

